

CONFIDENTIAL



UNIVERSITI TUN HUSSEIN ONN MALAYSIA

**FINAL EXAMINATION
(ONLINE)
SEMESTER II
SESSION 2020/2021**

COURSE NAME : OCCUPATIONAL SAFETY AND HEALTH
COURSE CODE : BDA 31302
PROGRAMME CODE : BDD
EXAMINATION DATE : JULY 2021
DURATION : 2 HOURS
INSTRUCTION : ANSWERS **TWO (2)** QUESTIONS **ONLY**
FROM SECTION A AND **ALL** QUESTIONS
FROM SECTION B

THIS QUESTION PAPER CONSISTS OF **SIX (6)** PAGES

CONFIDENTIAL

TERBUKA

SECTION A

Q1 (a) The effective management of Occupational Safety and Health (OSH) can reap benefits for an organisation in terms of reduced accident risk and employee absence through injury or illness, higher productivity as well as ensuring compliance with legislation. The Malaysian OSH Act Section 30 states that every employer shall establish a safety and health committee at the place of work if there are 40 or more persons employed. Examine and justify for safety and health committee more effective among committee membership and procedures during the meeting agendas

(10 marks)

(b) OHSAS 45001 is the new ISO standard for Occupational Safety and Health (OSH). While ISO 45001 draws on OHSAS 18001 the former benchmark for OSH management system, it is a new and distinct standard that directed at the top management of an organization and it aims to provide a safe and healthy workplace for employees and visitors. Differentiate and appraise between OHSAS 18001 and ISO 45001 in term of:

(i) The role of the management representative

(5 marks)

(ii) Risks, hazards and opportunities

(10 marks)

Q2 (a) You were appointed as a safety engineer at PLUS Berhad to be responsible on the landscape facilities maintenance section. The main activity of this section involves the work process for lawn mower grass cutter workers as shown in **Figure Q2(a)**. Using a suitable risk assessment form Table Q2(a), evaluate the work process and produce a Risk Assessment document. The document shall cover general information, possible hazard, severity, likelihood and risk.

Table Q2(a): Risk Assessment Form

TASK/PREMISES: Grass mowing					
No:	Activity/plant/materials, etc	Possible Hazard	Severity 1-10	Likelihood 1-10	Risk
1	Carry mower	1.			
		2.			
2	Cut grass	3.			
		4.			
		5.			
		6.			
3	Collect and dispose of cuttings	7.			
		8.			
4	Clean mower	9.			
		10.			

(15 marks)



- (b) In a chemical laboratory located on the fourth floor of a heavily populated building, several bottles of chemicals are stored in wood cabinets. There are 18 students at a time to perform their chemistry experiments in the laboratory, which has dimensions of 25 x 25 x 15 ft. During a recent inspection it was discovered that nitric acid (an oxidiser and corrosive), methyl ethyl ketone (an organic peroxide) and a petroleum derivative with a flash point of -25°F are stored together in one of the cabinets. By performing a preliminary hazard analysis (PHA),
- (i) Identify **THREE (3)** possible hazards that are present in the laboratory
(5 marks)
- (ii) Describe the effects of each hazard identified in part (b)(i).
(5 marks)

- Q3** (a) A recently conducted data analysis related to a construction work has resulted to **TWO (2)** most critical accidents which are:
- (i) Struck by falling object
(ii) Inhaling toxic chemical, gas or vapors

Compare both type of accidents above by giving a specific and clear example describing how each item may happen and suggest **FOUR (4)** causal factors related to each of them.

(8 marks)

- (b) The main objective in the principles of electrical safety is to protect human from electric shock, fire and burning effect resulted from contact with electricity. Using electrical safety knowledge, support the above statement by proposing **TWO (2)** fundamental steps to prevent human from contact with electricity. Provide descriptive explanation for each proposed preventive fundamental step.

(6 marks)

- (c) You are assigned as the senior safety officer at a worksite involving mechanical work. In executing the role of the safety officer, your first priority is to initiate a safety plan for the whole worksite. You have completed the process of identifying hazards and risk assessment for each task at the work area. The next step is to arrange for preventive and control actions to manage the risk at the worksite. Based on your safety and health work experience, examine **TWO (2)** type of accidents commonly happened at mechanical worksite by providing description and example of the accidents. Support your examination by proposing **SEVEN (7)** suitable methods for hazards preventive and control involving mechanical work.

(11 marks)

SECTION B

- Q4** (a) (i) Occupational health history started from industrial revolution in Great Britain due to hazardous exposure at workplace. Interpret the definition of occupational health from ILO / WHO committee references. (3 marks)
- (ii) Lead has two type of specific characteristics that are non-organic lead being used as metallic compound, alloy, and chemical mixture while organic lead used as additives for internal combustion. Demonstrate lead methods of exposure to worker and provide reasons. (3 marks)
- (iii) Purpose of ventilation systems are to supply clean air, contamination dilution, create air flow and control air pollution. Write **TWO (2)** methods of ventilation system. (3 marks)
- (b) (i) As a safety & health engineer working under company ABC, you are requiring enabling decision to be made based on suitable control measures, worker training needs, monitoring and health surveillance needs that are used to protect the health of workers who are exposed to chemical hazardous to health at workplace. Evaluate the general content of chemical health risk assessment according to Regulation 9(2) Use and Standards of Exposure of Chemical Hazardous to Health. (10 marks)
- (ii) Fire triangle consists of oxygen, heat, and flammables element. Fire will not occur in the absence of one element. Flammability limit of gas and vapour defines as levels at which gas and vapour may ignite and burn in an environment within the range of its flammable limit. There are two type of flammability limit which are lower flammability limit (LFL) and upper flammability limit (UFL). Distinguish these **TWO (2)** limits with factors influence. (6 marks)
- Q5** (a) John Wick is the newly appointed coordinator of health and safety for the local school board. She has just been informed of an accident experienced by an employee in the administrative office. It seems that two employees were trying to move a full filing cabinet by pushing it from one corner of the office to another. The cabinet tipped, crushing the foot of one of the employees. As a relative newcomer to the health and safety role, John has never conducted an accident investigation before. Assist John in designing an appropriate strategy for approaching the investigation. (16 marks)
- (b) Penang Second Bridge is a new bridge construction that connect the mainland to the island. The bridge is connecting Batu Kawan on the mainland to Batu Maung on the island. The bridge is constructed to reduce the traffic congestion on the current Penang

Bridge. The bridge is under the maintenance of Jambatan Kedua Sdn. Bhd. (JKSB). Date of incident: 6 June 2013 as in **Figure (5b)**.

◦ **Incident Description:** Part of Penang Bridge 2 ramp suddenly collapsed and crushed a Perodua Kelisa car, burying it under the rubble. The driver's body was found to be slumped over the dashboard of the car.

◦ **Root Cause:** Negligence of the contractor & design engineers to check the overall condition & built quality of the ramp

(i) Based on the Occupational, Safety and Health Act (OSHA) 1994, explain the reasons for the involvement of DOSH in this incident and why assistance from professionals were necessary.

(4 marks)

(ii) Based on your knowledge of occupational disasters worldwide, discuss the consequences for companies who are implicated in court and the importance of establishing good safety and health standards at all times.

(5 marks)

-END OF QUESTIONS –

FINAL EXAMINATION

SEMESTER / SESSION: SEM II / 2020/2021

PROGRAMME CODE: BDD

COURSE NAME: OCCUPATIONAL SAFETY AND HEALTH COURSE CODE: BDA 31302



Figure Q2(a): Lawn Mower Grass Cutter



Figure Q5(b): Penang Second Bridge